

CLAIMS:

1. A method for inserting replacement commercials into a data stream, the method comprising:

receiving the data stream;

5 detecting at least one commercial in the data stream;

determining a characteristic of program content at least prior to the at least one commercial; and

replacing the at least one commercial in the data stream with a replacement commercial which is selected based at least in part on the determining.

10 2. The method of claim 1, wherein the characteristic is an audio characteristic in the program content at least prior to the at least one commercial.

3. The method of claim 2, wherein the audio characteristic is a speech pattern of the program content at least prior to the at least one commercial.

15 4. The method of claim 3, wherein the replacing comprises replacing the at least one commercial with a replacement commercial having a speech pattern within a predetermined threshold of the speech pattern of the program content at least prior to the at least one commercial.

5. The method of claim 3, wherein the speech pattern is selected from a group consisting of pitch and intonation.

20 6. The method of claim 2, wherein the audio characteristic is a music characteristic in the program content at least prior to the at least one commercial.

7. The method of claim 6, wherein the replacing comprises replacing the at least one commercial with a replacement commercial having a music characteristic within a predetermined threshold of the music characteristic in the program content at least prior to the at least one commercial.

25 8. The method of claim 6, wherein the music characteristic is selected from a group consisting of beats, tempo, rhythm, and genre.

9. The method of claim 1, wherein the characteristic is visual characteristic in the program content at least prior to the at least one commercial.

30 10. The method of claim 9, wherein the replacing comprises replacing the at least one commercial with a replacement commercial having a visual characteristic

within a predetermined threshold of the visual characteristic in the program content at least prior to the at least one commercial.

11. The method of claim 9, wherein the visual characteristic is selected from a group consisting of texture, color, compositions, and objects.

5 12. The method of claim 1, wherein the characteristic is one or more electronic program guide (EPG) characteristics of the program content at least prior to the at least one commercial.

10 13. The method of claim 12, wherein the replacing comprises replacing the at least one commercial with a replacement commercial having one or more EPG characteristics within a predetermined threshold of the EPG characteristics in the program content at least prior to the at least one commercial.

14. The method of claim 9, wherein the one or more EPG characteristics is genre.

15 15. The method of claim 1, further comprising:
determining a recommendation for a viewer based on at least one of the viewer's viewing behavior and explicit recommendations of the viewer;
wherein the replacing further comprises replacing the at least one commercial in the data stream with a replacement commercial which also is selected based at least in part on the recommendation.

20 16. A device (100, 150) for inserting replacement commercials into a data stream, the device comprising a processor (104, 152) for receiving the data stream, detecting at least one commercial in the data stream, determining a characteristic of program content at least prior to the at least one commercial, and replacing the at least one commercial in the data stream with a replacement commercial which is selected based at least in part on the characteristic determination.

17. The device of claim 16, wherein the data stream is a video data stream and the device further comprising a display (102) operatively connected to the processor for displaying video corresponding to the video data stream.

30 18. The device of claim 16, wherein the data stream is an audio data stream and the device further comprising at least one speaker (114) operatively connected to the processor for reproducing audio corresponding to the audio data stream.

19. The device of claim 16, further comprising:
a recommender system (156) for determining a recommendation for a viewer based on at least one of the viewer's viewing behavior and explicit recommendations of the viewer;

5 wherein the processor replaces the at least one commercial in the data stream with a replacement commercial which also is selected based at least in part on the recommendation.

20. A computer program product embodied in a computer-readable medium for inserting replacement commercials into a data stream, the computer program product comprising:

computer readable program code means for receiving the data stream;
computer readable program code means for detecting at least one commercial in the data stream;

15 computer readable program code means for determining a characteristic of program content at least prior to the at least one commercial; and

computer readable program code means for replacing the at least one commercial in the data stream with a replacement commercial which is selected based at least in part on the determining.

21. A program storage device readable by machine, tangibly embodying 20 a program of instructions executable by the machine to perform method steps for inserting replacement commercials into a data stream, the method comprising:

receiving the data stream;
detecting at least one commercial in the data stream;
determining a characteristic of program content at least prior to the at least 25 one commercial; and

replacing the at least one commercial in the data stream with a replacement commercial which is selected based at least in part on the determining.